Ephemeris for Berlin Mean Noon.

1849.	R.A.	Dec.	Log. Δ	Log. r
	° ′	° ′		
Jan. 0	340 54·5	− 8 28·4	0·03025	0·00774
10	347 49·3	17 58·0	07256	9·98855
20	354 4·2	25 28·9	11169	98228
30	359 55·1	31 41·2	14426	9·99026
Feb. 9	5 41·2	36 53·0	16884	0·01080
19	11 44·2	41 21·5	18584	04022
March 1	18 27·7	45 19·6	19641	07460
11	26 15·7	48 55·1	20216	11086
21	35 34·4	52 9·0	20498	14705
31	46 48·0	54 54·2	20697	18206
April 10	60 7·0	56 54·5	21039	21536
20	75 9·6	−57 48·8	0·21743	0·24676

ENCKE'S COMET.

The following observation was made at Cambridge, U. S., with the circles of the equatoreal, corrected by α^2 *Libræ* :—

Cambridge M.T.

1848 Nov. 25 $18^h\ 5^m\ 20^s$ R.A. $= 14^h\ 52^m\ 59^s{\cdot}4$ N.P.D. $106°\ 44'\ 49''$

The observation is corrected for refraction and instrumental error only, and the place is referred to the mean equinox, Jan. 1, 1848.

LIVERPOOL. Equatoreal. (Mr. Hartnup.)

1848.	Greenwich M.T. h m s	R.A. h m s	Corr. Eph. s	N.P.D. ° ′ ″	Corr. Eph. ′ ″	No. of Comps.	
Oct. 10	15 15 59	7 57 13·15	+36·80	36 56 31·0	+2 18·2	9	*a*
18	17 41 46	10 26 57·01	29·98	44 52 2·5	4 38·6	2	*b*
22	17 1 4	11 24 59·43	9·79	53 3 6·7	5 12·5	6	*c*
23	17 33 7	11 37 30·42	8·19	55 21 47·9	4 58·7	5	B.A.C. 3965
25	17 44 23	11 59 27·86	+ 6·39	59 58 11·7	+4 48·1	5	*d*

"For the observations of Encke's comet, four thick wires were placed so as to form a small square in the centre of the field. The hour-circle was set going nearly to sidereal time, the star and comet were brought alternately into the centre of the square, the time noted, and the hour-circle and declination-circle read off. The observations were made under the disadvantage of little previous experience, and the management of the clock was not at that time thoroughly acquired."

"The observations are corrected for parallax and refraction, and compared with the ephemeris published by the Superintendent of the *Nautical Almanac*. The corrections noted must be applied to the ephemeris to produce the observed places."

"The place of B.A.C. 3965, is taken from that catalogue. The mean places of the other stars are :—

	Epoch, Jan. 1, 1848. R.A. h m s	N.P.D. ° ′ ″	*Compared by the Instrument with	
a	7 51 48·08	36 49 32·2	B.A.C. 2967	2 Comparisons.
b	10 23 24·35	45 2 23·9	— 3515	1 —
c	11 24 4·89	60 54 48·6	— 3856,3965	
d	12 2 44·82	60 5 9·7	— 4147	2 —

Description of a Machine for Polishing Specula.
By Mr. Lassell.

"The twelfth volume of the *Memoirs of the Royal Astronomical Society* contains a description of a Newtonian Reflecting Telescope, of 9 inches aperture and 112 inches focus, equatoreally mounted in a revolving dome of 14½ feet diameter.

"Several years' experience in the use of this instrument so well convinced me of its general efficiency, and especially of the convenience and stability of its mounting, that I determined, two or three years ago, to carry out precisely the same principle on a much larger scale.

"With a view of informing myself what degree of perfection is attainable in figuring surfaces of larger mirrors than can be wrought by hand, and also of ascertaining the proportion of aperture to focus which it would be most desirable to adopt, I visited Birr Castle; and, by the kindness of the Earl of Rosse, enjoyed the opportunity of two nights' observations with the 3-foot telescope erected by his lordship.

"I was also favoured with an examination of the whole of the machinery employed in grinding and polishing the great speculum; and I returned so well satisfied with all I had seen, that I very shortly resolved to cast a speculum of 2 feet diameter and 20 feet focus.

"The mode of casting the large speculum which I employed involved the principle, discovered, I believe, and first published, by Lord Rosse, of casting the speculum on what is technically called a *chill*, *i.e.* an iron base, slightly warmed, which causes the speculum to cool upwards in horizontal strata.

"Principally, however, from the difficulty of forming it, I did not employ a base constructed with iron hoops placed edgewise, and turned to the gauge, as Lord Rosse recommends, but, instead of it, a *disk* of cast iron, with its upper surface convex, according to the required radius of curvature, and a rebate formed on the edge of its upper surface, which, receiving a stout iron hoop equal in breadth to the thickness of the speculum, formed an iron mould, and dispensed altogether with the use of sand in the casting. The disk does not require to be *turned*, but if cast from a well-made

* The partial results agree as well as those obtained by the best meridian instruments.